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10/539,016	06/16/2005	Andrew Levers	540-569	7399
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ARLINGTON, VA 22203			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,016	LEVERS, ANDREW	
	Examiner	Art Unit	
	Nicholas P. D'Aniello	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 November 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-5 and 7-39 is/are pending in the application.

4a) Of the above claim(s) 27-37 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-5, 7-26, 38 and 39 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____ .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Response to Amendments

The amendment filed November 28th 2008 is acknowledged. Claims 1-5 and 7-39 remain pending in the application. All the references are of record and no PTO-892 is attached hereto.

Election/Restrictions

Applicant's argument regarding the restriction is acknowledged. The traversal is on the ground(s) that the Examiner has cited a different reference (Haas et al.) than originally presented (Nardiello) in the restriction requirement. However, as the Haas et al. reference still anticipates the claims as amended (see below) there is no special technical feature linking the method and apparatus claims, and the requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 10-17 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Haas et al. (USP 6,089,061).

Haas et al. teach an apparatus comprising a shaped surface defined by a collection of pins 5, 505 with intermediate interpolating pads 210 which during use receives and supports the component to be modified and deform to the shape of the

shaped surface. The shaped surface is defined by an open structure, which is separated by the gaps between the pins (see figure 4B element 150 represents a gap, additionally see figure 5 and 6 where the pins are shown in more detail and a space between pins can be seen, i.e. spaced apart). The intermediate surface dependent on the smooth surface which bridges the gaps (as seen in figure 1), therefore the intermediate member must be sufficiently stiff so that it suffers no local deformation in regions that bridge the gaps (column 7 lines 33-58).

The preamble limitation of “for shaping an aircraft component by creep forming the component” is a recitation of intended use. As per MPEP 2114 relating to Apparatus and Article claims – Functional Language: While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. >*In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). As the references and the claimed apparatus are patentably indistinguishable in terms of structure, the apparatus of the prior art is reasonable expected to be able to perform the claimed functionality (i.e. shape an aircraft component by creep forming the component).

In regard to **claims 2 and 3**, as seen in figure 1, the intermediate members 210 are generally sheet like with a constant thickness.

In regard to **claim 10**, as noted above, the shaped surface is defined by an open structure. As seen in figure 1, a gap exists between the individual pins 505.

In regard to **claims 11 and 12**, the shaped surface is defined by a multiplicity of spaced apart elements (such as pins 505); the shape to which the component will be modified is dependent on the smooth surface defined by the multiplicity of separate elements 505.

In regard to **claim 13**, the elements are arranged in common modules 560 (groups) which remain mounted and in a fixed relation to each other (figure 2; column 6, lines 57-65).

In regard to **claim 14**, the elements 505 make up rows and columns which may be oriented into a ribbed structure such as seen in figure 2.

In regard to **claim 15**, the modules 100 can be placed in any orientation for the required plan form (figure 5; column 9, lines 19-21) and are identical and interchangeable (column 10, lines 6-8) and are threaded such that they may be attached (and detached) by drive nuts or couplings 15 or 505 as seen in figure 5 (column 7, lines 58-64) and therefore are movably (and removably) mounted on the apparatus.

In regard to **claim 16**, the modules 100 (portion of the elements) are engaged with each other by a controller (corresponding portion of the apparatus) (column 10, lines 6-31) and the elements (pins 505) are not restricted from movement away from the apparatus (figure 2).

In regard to **claim 17**, the shaped surface of the pins is set into place and the pads 210 must be sufficiently rigid to prevent local crippling or damage to the aircraft component 200 (column 7, lines 35-40).

In regard to **claims 38 and 39**, Haas et al. teach that this forming apparatus is capable of making honeycomb cores (aircraft components) which are used in the aerospace industry; where many aircraft require honeycomb core formed structures for their strength to weight ratio (column 10, lines 46-59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4, 5, 7-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas et al (USP 6,089,061).

Haas et al. teach a shape modifying apparatus as applied above. **Claim 4** differs from the reference in calling for the intermediate member to be flat prior to use. However it would have been obvious that this member would be flat prior to use because Haas et al. teach the intermediate members are open-weave fiber or mesh

pads, which typically originate as flat sheets. Although the intermediate member 210 as shown in figure 1 is not flat (because it is conforming to the shaped surface), it is reasonably assumed that the intermediate member 210 would start as a flat sheet in order to be uniformly deform to the contour of the shaped surface.

In regard to **claim 5**, Haas et al. teach an apparatus as applied above where the intermediate member deform to the shape of the shaped surface. Although not specifically disclosed, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the intermediate member reusable in order to reduce the cost using the reshaping apparatus.

In regard to **claim 7**, Haas et al. teach an apparatus as applied above where the intermediate member is placed (free to move) over shaped surface (column 7, lines 33-40). Although not specifically disclosed, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide predefined boundaries to prevent the member from falling out of the apparatus.

In regard to **claims 8**, although Haas et al. does not specifically disclose that the workpiece is free to move in directions parallel to the shaped surface, Haas et al. teach that the workpiece maybe different sizes (column 9, lines 5-10) and therefore it is reasonably assumed that a workpiece which is substantially smaller than the forming cavity would be free to move over the shaped surface. The Examiner notes this claim relates to the component acted upon by the apparatus, however per MPEP 2115: "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte*

Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d *>996<, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). As the apparatus of Haas et al. is structurally equivalent to the claimed apparatus, the shaping apparatus of Haas et al. is reasonably assumed to be capable of being arranged such that the aircraft component is free to move in directions parallel to the shaped surface.

In regard to **claim 9**, as seen in figure 1, a wall 280 prevents the aircraft component 200 from moving beyond predefined boundaries.

In regard to **claims 18 and 19**, As per MPEP 2114 relating to Apparatus and Article claims – Functional Language: While features of an apparatus may be recited either structurally or functionally, claims< directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >*In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

As the reference and the claimed forming apparatus are structurally equivalent, the apparatus of the prior art is reasonable expected to be able to perform the claimed functionality (i.e. such as forcing the component against the shaped surface by providing an air pressure difference, by suction) because the pins 505 in the apparatus of Haas et al. are provided with holes 516 to allow the passage of air or gas into or out of the forming chamber by the air forced through a blower 250 (figure 3; column 7 line 33 – column 8 line 21) it would have been obvious to one of ordinary skill in the art at

the time of the invention that the apparatus of Haas et al. is capable of creating an air pressure difference by suction by simply reversing the action of the blower 250.

6. Claims 1 and 18-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Bornschlegl et al. (USP 6,264,771 cited in IDS) in view of Haas et al (USP 6,089,061).

Bornschlegl et al. teach an apparatus for modifying the shape of an aircraft component (column 1, lines 6-8) where the component is forced against a shaped surface of the bottom segment 6 by an air pressure difference provided by suction of a vacuum foil (16, bag) (column 2, lines 30-34).

Independent claims 1 and 21 differ from the reference in calling for an intermediate member and the shaped surface to be defined by an open structure, the open structure including spaced apart elements separated by gaps, the shape to which the component may be modified being dependent on the shape defined by the notional smooth surface enveloping the elements and bridging the gaps, the intermediate member being sufficiently stiff that in use during the forcing of the aircraft component against the shaped surface, the intermediate member deforms substantially to the shape of said notional smooth surface, but suffers substantially no local deformation in regions of the intermediate member that bridge the gaps.

However, Haas et al. teach an apparatus for shaping an aircraft component comprising a shaped surface defined by a collection of pins 5, 505 with intermediate interpolating pads 210 (which during use receives and supports the component to be modified) which deform to the shape of the shaped surface. The shaped surface is

defined by an open structure, which is separated by the gaps between the pins (spaced apart elements). The intermediate surface dependent on the smooth surface which bridges the gaps (as seen in figure 1), therefore the intermediate member must be sufficiently stiff so that it suffers no local deformation in regions that bridge the gaps (column 7 lines 33-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide such a shaped surface and intermediate member in the apparatus of Bornschlegl et al. in order to obtain a forming apparatus with a reconfigurable shaped surface to facilitate the shape modifying of the aircraft component to any desired shape provided by the reconfigurable upper and lower dies of Haas et al.

In regard to **claims 18-20, 22 and 23**, Bornschlegl et al. teach a vacuum foil (16, bag) which encompasses the component 6 and a portion of the mold face (12, part of the apparatus) on the opposite side of the shaped surface, where the vacuum foil is sealed to the mold shell (10, base) in order to force the component against the shaped surface by means of suction (figures; column 3, lines 8-10).

In regard to **claim 24**, Bornschlegl et al. do not specifically teach that the vacuum foil (16, bag) is reusable, however it is reasonably assumed that this component is reusable, in the event that it is not taken to be reusable, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the vacuum foil reusable in order to reduce the cost using the reshaping apparatus.

In regard to **claim 25**, Bornschlegl et al. teach the reshaping apparatus as a creep forming tool (column 1, lines 19-20).

In regard to **claim 26**, Bornschlegl et al. teach using the reshaping apparatus for modifying metallic components (column 1, lines 6-65).

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive. Specifically in regard to the Haas et al. reference, applicant contends that the apparatus of Haas et al. does not define spaced apart elements separated by gaps. However as seen in the more detailed drawings of figures 5 and 6 these pins are not touching each other (as these are moving parts and contact would result in undesirable friction/wear) and as seen in figure 4b there are gaps 150 between the pins. As there is no specific definition of "spaced apart" (in fact support for this limitation is taken from the instant drawings) the pins of Haas et al. is taken to embrace this limitation absent evidence to the contrary.

Applicant's argument that Haas et al. does not show an intermediate member which suffers no deformation while bridging the gaps to conform to the shape of the smooth surface defined by the shaped surface is not persuasive as this is clearly shown in figure 1 of Haas et al. The fact that Haas et al. contemplates a fiber or mesh for this element is inconsequential as there is no claim limitation which defines the material or precludes the interpolating pad of Haas et al. from being the intermediate member in the instant claims. Applicant's statement that a fiber or mesh would inherently sag in the gaps is unfounded.

As Haas et al. teaches an apparatus which is structurally indistinguishable from the claimed apparatus Haas et al. is reasonably assumed to teach an apparatus which is at least capable of being a creep forming apparatus.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Specifically, Bornschlegl et al. is used in combination with Haas et al. and in the combination the surface of Haas et al. is used in the apparatus of Bornschlegl et al. in order to provide a reconfigurable surface (which includes the intermediate member, gaps and spaced apart elements) which is an explicit motivation and the combination obviates the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. P. D./
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793